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Richard G. Washington

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01/11/2006

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EXAMINER

GILMAN, ALEXANDER

ART UNIT

PAPER NUMBER

2833

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/732,924

Applicant(s)

WASHINGTON ET AL.

Examiner

Alexander D. Gilman

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/01/2005, 02/16/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1-7,9-12,14-26,29-32,35,37,40,42,46-50,53-56,59-64,66,67,74-76,78,79,81-85 and 88-97.

Continuation of Disposition of Claims: Claims rejected are 1-7,9-12,14-26,29-32,35,37,40,42,46-50,53-56,59-64,66,67,74-76,78,79,81-85 and 88-97.

**DETAILED ACTION*****Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the the second slip ring apparatus must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2833

Claims 1-7, 9-12, 14-26, 29-32, 35, 37, 40, 42, 46-50, 53-56, 59-64, 66-67, 74-76, 78-79, 81-85 and 88-97 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-7, 9-12, 14-26, 29-32, 35, 37, 40, 42, 46-50, 53-56, 59-64, 66-67, 74-76, 78-79, 81-85 and 88-97 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 15, 40, 42, 53, 56, 74, 78, 82,85,88,93,97 recite  
" ...a second slip ring apparatus coupled to said optical block and a second drive actuator coupled to said second slip ring apparatus to impart rotation to said optical block ...".

It is unclear how the second slip ring apparatus communicates with the second drive actuator and the optical block, since the specification (Fig. 5, p. 18, lines 1-5, and Fig. 8 ) disclose the tilting movement signal being transferred through the first slip ring apparatus.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims, **82-87** are, as they can be understood due to the 112 problem, rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Hannah and Williams,Jr.

With regard to claims 82- 84, Wakiyama et al (US 6,392,693) disclose a first slip ring apparatus (9), comprising:

a first slip ring component (9a), said first slip ring component comprising a first

Art Unit: 2833

interface surface and at least one first dynamic interface component; and  
a second slip ring component (9b), said second slip ring component comprising a  
a second interface surface and at least one second dynamic interface component,  
an optical block (1) coupled to said first slip ring apparatus (9),  
a first drive actuator (6, 7).

Wakiyama et al (US 6,392,693) disclose all of the limitations except for explicitly teaching serial digital signal.

Hannah (US 5,568,192) teaches a digital camera and serial digital signal (Fig. 4) or analog signal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a digital camera transferring digital serial signal in Wakiyama et al, as taught by Hannah , to transfer high resolution data.

Wakiyama et al-Hanna et al do not disclose that said printed circuit board comprises integrated circuitry configured to process said at least one signal.

Williams, Jr (US 4,404,560) disclose that said printed circuit board comprises integrated circuitry (19, 16) configured to process said at least one signal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Wakiyama -Sobhani et al with integrated circuitry configured to process said at least one signal as taught by Williams, to encode the angular position of the rotating components

With regard to claims 85-87, Wakiyama et al disclose the structure, as applied to claims 82-84 above, which operates according to steps claimed.

Claims, **88-92, 97, 98, 29-38, 66, 67, 69, 70, 74-77** are, as they can be understood due to the 112 problem, rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Hannah further in view of Sobhani et al.

Wakiyama et al in view of Hannah disclose all of the limitations except for the first and the second slip ring components comprising a printed circuit board.

Sobhani disclose sa slip ring comprising a printed circuit board (27,28).

Art Unit: 2833

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a printed circuit board in Wakiyama et al -Hannah, as taught by Sobhani et al to effectively dispose a plurality of conductors on the board's surface.

With regard to claim 88, 92 Wakiyama et al –Sobhani et al disclose that said printed circuit board of said first slip ring component comprises control circuitry ( 13) for said drive actuator (6, 7).

.Claims **15- 25, 40, 41** are, as they can be understood due to the 112 problem, rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Sobhani and further in view of Tanaka.

With regard to claims 15, 16, 40, 41 Wakiyama et al discloses (Fig. 1) a camera system having a first a slip ring apparatus (9), comprising:

a first slip ring component (9a), said first slip ring component comprising a first interface surface and at least one first dynamic interface component; and  
a second slip ring component (9b0 , said second slip ring component comprising a  
a second interface surface and at least one second dynamic interface component.  
an optical block (1) coupled to said first slip ring apparatus (9),  
a first drive actuator (6, 7).

Wakiyama et al do not explicitly disclose that said at least one of said first and second slip ring components that is rotating about said axis of slip ring rotation relative to the other of said first and second slip ring components comprises a printed circuit board  
. Sobhani et al disclose a slip ring comprising a printed circuit board (27-28).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a printed circuit board in Wakiyama et al, as taught by Brundage, to effectively dispose a plurality of conductors on the board's surface.

Wakiyama et al-Sobhani et al do not disclose that said printed circuit board comprises integrated circuitry configured to process said at least one signal.

Art Unit: 2833

Tanaka et al (US 4,563,683) disclose that said printed circuit board comprises integrated circuitry (141, 145, 151, 152) configured to process said at least one signal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Wakiyama -Sobhani et al with integrated circuitry configured to process said at least one signal as taught by Tanaka et al , to encode the angular position of the rotating components

With regard to claims 17, 18, 19, 21, 22 Wakiyama et al when modified by Sobhani et al-Tanaka et al discloses (Wakiyama et al, Fig. 1) a forward or return optical block control signal, an optical block image signal, or an optical block power signal;

that first slip ring component is configured to be coupled to an optical block (Wakiyama et al, Fig.1) so that said optical block is rotatable with said Grst slip ring component relative to said second slip ring component;.

With regard to claim 20, Wakiyama et al when modified by Sobhani et al-Tanaka et al discloses (Wakiyama et al, Fig. 1) a drive actuator.

With regard to claim 22 ,Wakiyama et al when modified by Sobhani et al-Tanaka et al discloses (Brundage, r.n.110) component comprises at least one of a conductive trace or a contact pad.

With regard to claim 23, Wakiyama et al when modified by Sobhani disclose all of limitaions including (Tanaka et al) conductive segments being positioned to interact with each other without contacting to form a position sensor mechanism.

With regard to claims 24-25, Wakiyama et al when modified by Sobhani disclose that said first peripheral sealing surface of said first housing (11) component rotatably and sealably mates with said second peripheral surface of said second housing (12) component to form a dynamic seal around the periphery of said slip ring housing.

Claim 26, 78-81 are, as they can be understood due to the 112 problem, rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Tanaka et al - Sobhani and further in view of Mitsnya et al.



Art Unit: 2833

Wakiyama et al when modified by Sobhani –Tanaka et al does not disclose ferro-fluidic seal.

Mitsnya et al (US 4,424,974) disclose ferro-fluidic seal.

Therefore it would be obvious to use ferro-fluidic seal, as taught by Mitsnya et al. to effectively seal the rotating parts.

Claims 40, 41, 97, 98, 30-36, 66, 67, 69, 70, 74-77 are, as they can be understood due to the 112 problem, rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Sobhani et al and further in view of Tanaka et al

With regard to claims 40, 41, 30-36, 97, 98, 30, 74-77, Wakiyama et al. disclose a camera system, comprising:

- a first slip ring apparatus, said first slip ring apparatus comprising:

- a moving first slip ring component (9a), , and

- a stationary second slip ring component (9b) , said second slip ring component comprising a second slip ring substrate that comprises a circular platter having a second planar interface surface defined thereon, and at least one second dynamic interface component supported by said second slip ring component substrate,

- an optical block (6, 4, 1) coupled to said first slip ring apparatus so that it rotates with said first slip ring component relative to said second slip ring component, said first slip ring component being coupled between said optical block and said second slip ring component:

- a first drive actuator (8) .

- a feedback circuitry on one of slip ring component.

Wakiyama et al do not disclose that said first slip ring component substrate comprises a printed circuit board with feedback circuitry being integrated .

Sobhani et al disclose a slip ring comprising a printed circuit board (100a, b).

Art Unit: 2833

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a printed circuit board in Wakiyama et al, as taught by Brundage to effectively dispose a plurality of conductors on the board's surface.

Sobhani et al do not disclose that said printed circuit board comprises integrated circuitry configured to process said at least one signal.

Tanaka et al (US 4,563,683) disclose that said printed circuit board comprises integrated circuitry (141, 145, 151, 152) configured to process said at least one signal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Wakiyama- Sobhani et al with integrated circuitry configured to process said at least one signal as taught by Tanaka et al , to encode the angular position of the rotating components

With regard to claim 32, Wakiyama et al –Tanaka-Sobhani disclose that said printed circuit board of said first slip ring component comprises control circuitry ( 13) for said drive actuator (6, 7).

With regard to claim 31, 33 Wakiyama et al disclose that said at least one serial digital signal comprising a forward or return optical block (1) control signal, an optical block image signal, and an optical block power signal;

With regard to claim 34, Wakiyama et al disclose that one of contacts being a brush contact (forming a sliding connection completing a circuit between a fixed and a moving conductor).

With regard to claims 35, 36 Wakiyama et al –Tanaka-Sobhani disclose (Tanaka et al) a position sensor mechanism

With regard to claims 66, 67, 69, 70 Wakiyama et al –Tanaka-Sobhani disclose that said printed circuit board of said first slip ring component comprises control circuitry

Claims **64, 65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Tanaka-Sobhani and further in view of Hannah.

Wakiyama et al - Tanaka-Sobhani disclose all of the limitations except for explicitly teaching serial digital signal.

Art Unit: 2833

Hannah (US 5,568,192) teaches a digital camera and serial digital signal (Fig. 4).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a digital camera transferring digital serial signal in Wakiyama et al, as taught by Hannah , to transfer high resolution data.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Tanaka-Sobhani and further in view of Yamashita et al.

Wakiyama et al- Tanaka-Sobhani do not disclose that said first drive actuator comprises a voice coil servo mechanism.

Yamashita et al.(US 6,756,759) disclose (Fig. 91) a drive actuator comprising a voice coil servo mechanism.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a a voice coil servo mechanism.in Wakiyama et, as taught by Yamashita to effectively detect aposition of the camera.

.Claims 37- 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Sobhani as applied to claim 28, 30 above, and further in view of Mitsnya Mitsnya et al (US 4,424,974) disclose ferro-fluidic seal

Therefore it would be obvious to use ferro-fluidic seal, as taught by Mitsnya et al. to effectively seal the rotating parts.

Claims 71, 93-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al, Sobhani, Tanaka et al Yamashita, Mitsnya et al as applied above to respective claims 15-26, 29-39.

Wakiyama et al, Sobhani, , Tanaka et al, Yamashita, Mitsnya et al disclose the structures which are operat using steps claimed.

Claims 78-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobhani in view of Wakiyama et al further in view of Mitsnya et al.

Wakiyama et al when modified by Sobhani discloses all of the limitations except for ferro-fluidic seal.

Art Unit: 2833

Mitsnya et al (US 4,424,974) disclose ferro-fluidic seal.

Therefore it would be obvious to use ferro-fluidic seal, as taught by Mitsnya et al. to effectively seal the rotating parts.

Claim **81** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama in view of Sobhani et al -Mitsnya et al and further in view of Shin et al

Wakiyama et al when modified by Sobhani -Mitsnya discloses all of the limitations except for high speed differential serial digital signal.

Shin et al teaches a serial differential digital signal in high speed video input from digital cameras (col. 1, lines39-43).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a digital camera transferring digital serial signal in Wakiyama et al, as taught by Shin et al , to transfer high resolution data at high speed.

Claims **1-7,9-12, 14, 42-50,52-61, 72, 73** are, as they can be understood due to the 112 problem rejected under 35 U.S.C. 103(a) as being unpatentable over Wakiyama et al in view of Sobhani et al and further in view of Hanna et al as applied to the respective claims above and further in view Brophy et al.

Wakiyama et al in when modified by Sobhani et al and Hanna et al do not disclose explicitly serializer circuitry being integrated within at least one of said first or second slip ring components.

The prior art applied to electro-optical apparatuses inherently should include serializer circuitry (For example, Hanna et al r.n. 412, 414) for conversion from analog, optical form to digital form.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide serializer circuitry being integrated within at least one of said first or second slip ring components, since it has been held that would be no invention in shifting location of parts to a different position since the operation of the device would not be thereby be modified In re Japikse, 86 USPQ 70.

For example, Brophy et al disclose (col. 12 , lines 30-32) serializer circuitry being integrated within PCB.

Art Unit: 2833

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander D. Gilman whose telephone number is 571 272-2004. The examiner can normally be reached on Monday-Friday, 10:30 a.m. - 8:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571 272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

01/03/2006

Handwritten signature of Alex Gilman in cursive script.

**ALEXANDER GILMAN  
PRIMARY EXAMINER**